



Polymers based on renewable resources

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February 10, 2025







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ALBERDINGK BOLEY in a nutshell

 <p>Leading global manufacturer of environmentally friendly water-based binders and oils with unique properties to refine, refurbish, bind and protect multiple types of substrates</p>	 <p>Medium sized, privately owned company</p> <p>> a partner to our customers for more than 250 years</p>	 <p>> 500 employees</p>
 <p>Dynamic, Innovative and flexible</p> <p>Pioneers in biobased polymer dispersions</p>	 <p>Dispersions: Acrylic, Vinyl acetate, Polyurethane and hybrid dispersions</p> <p>Oils: Linseed oil, Castor oil, Derivatives</p>	 <p>Locations:</p> <ul style="list-style-type: none"> • Krefeld, Germany • Kerpen, Germany • Leuna, Germany • Treviso, Italy • Congleton, UK • Greensboro, USA • Shenzhen, China • Zhuhai, China

For more information about ALBERDINGK BOLEY and our product offerings, visit www.alberdingk-boley.de.

Product Overview

	Renewable content [ca. % on solids]	Wood coatings	Architectural coatings	Packaging & film coatings & printings	Textile & leather coatings	Metal coatings	Adhesive applications
Ren AC 5605	21		x	x	x		
Ren AC 8003	45		x			x	
Ren AC 8025	38		x				
Ren AC 8403	32		x			x	
Ren AC 8700	42	x					
Ren AC 8742	16	x					
Ren AC 9630	21	x					
Ren AS 7900	40		x				
CUR 751	57		x				
CUR 991	39	x					
CUR 920	55	x					
LUR 3	55	x					
OP 100	89	x					
OP 105	100	x					
Ren U 178	77		x		x		
Ren U 228	68		x		x		x
Ren U 355	75			x			x
Ren U 400 N	66		x	x	x		x
Ren U 460	56			x			x
Ren U 4000	55			x			x
Ren U 4101	64			x	x		x
U 8500	21	x					
Albodur®-polyols	60 - 95		x			x	x

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Introduction

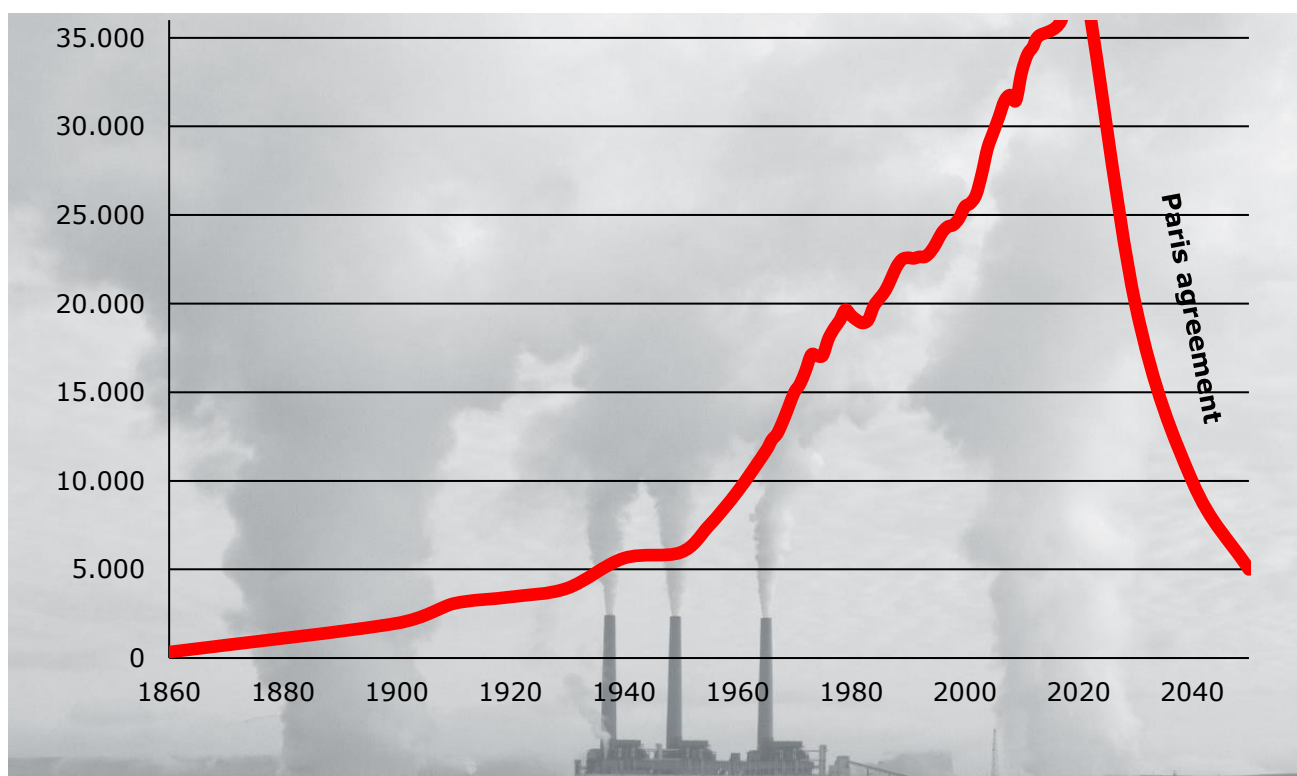
ALBERDINGK BOLEY has more than 250 years tradition of producing linseed and castor oils and their derivatives.

As pioneers for biobased polymers, we already patented the first polyurethane dispersion based on castor oil in the 1990s and launched a whole range of 100% polyols based on castor oil in the early 2000s.

Every industry sector is currently looking for environment-friendly products. Driving forces are the good commercialisation and also economic benefits.

In this brochure we want to focus on the products based on renewable resources instead of pointing out our efforts on saving energy and waste, which is in our opinion self-evident for a company certified according to ISO 50000:2011.

Global CO₂-Emissions in million tons



➔ Immediate action from every stakeholder is required to meet the Paris Agreement.

As supplier of binders for paints & coatings, ALBERDINGK BOLEY can contribute in the global CO₂ emission reduction by enhancing the already existing portfolio of renewable resource based products.

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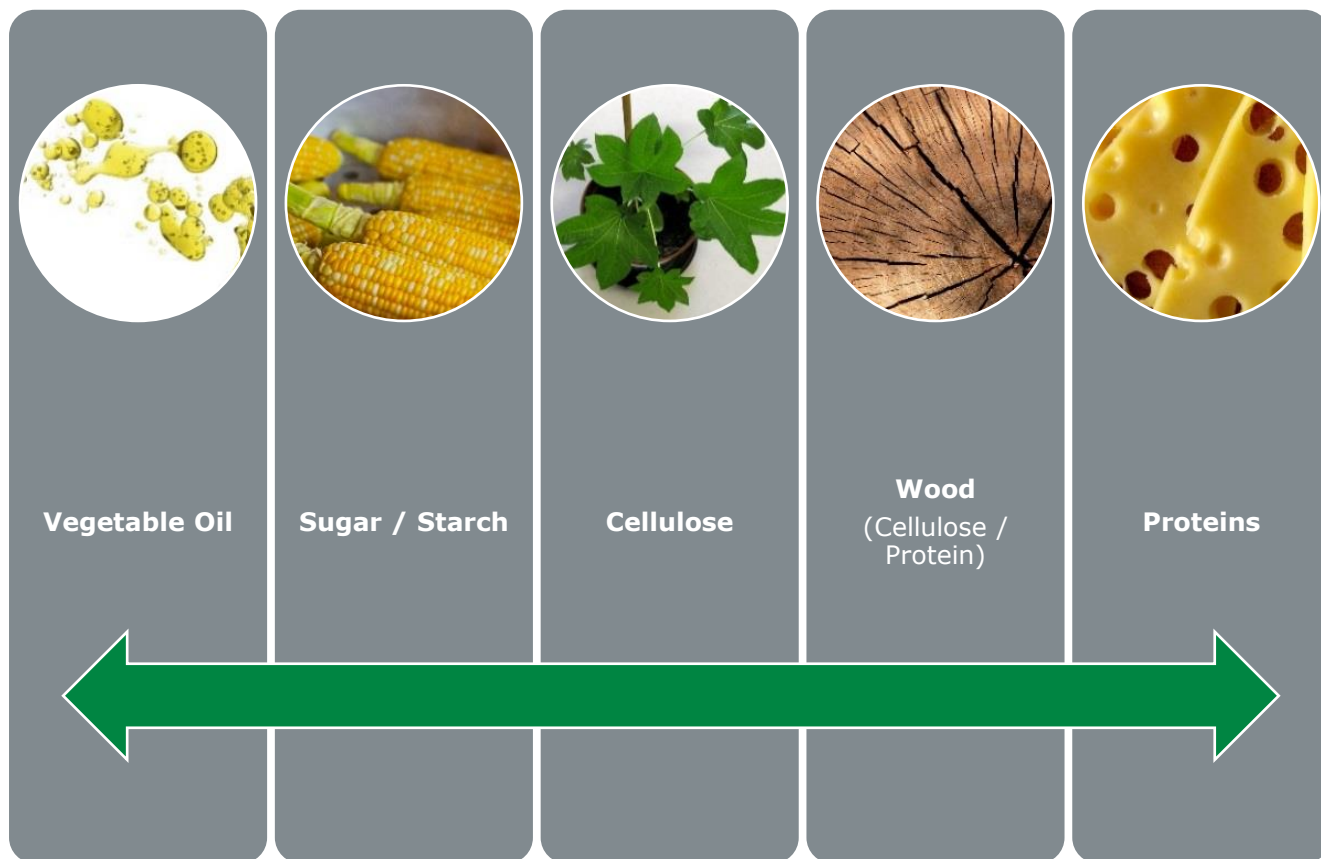
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Which kinds of renewable resources are theoretically possible



ALBERDINGK BOLEY uses polyaddition and radical emulsion polymerization as manufacturing methods for the production of water-based binders.

Therefore renewable resource based precursors need to be reactive in the a.m. processes – this excludes a couple of the a.m. raw materials.

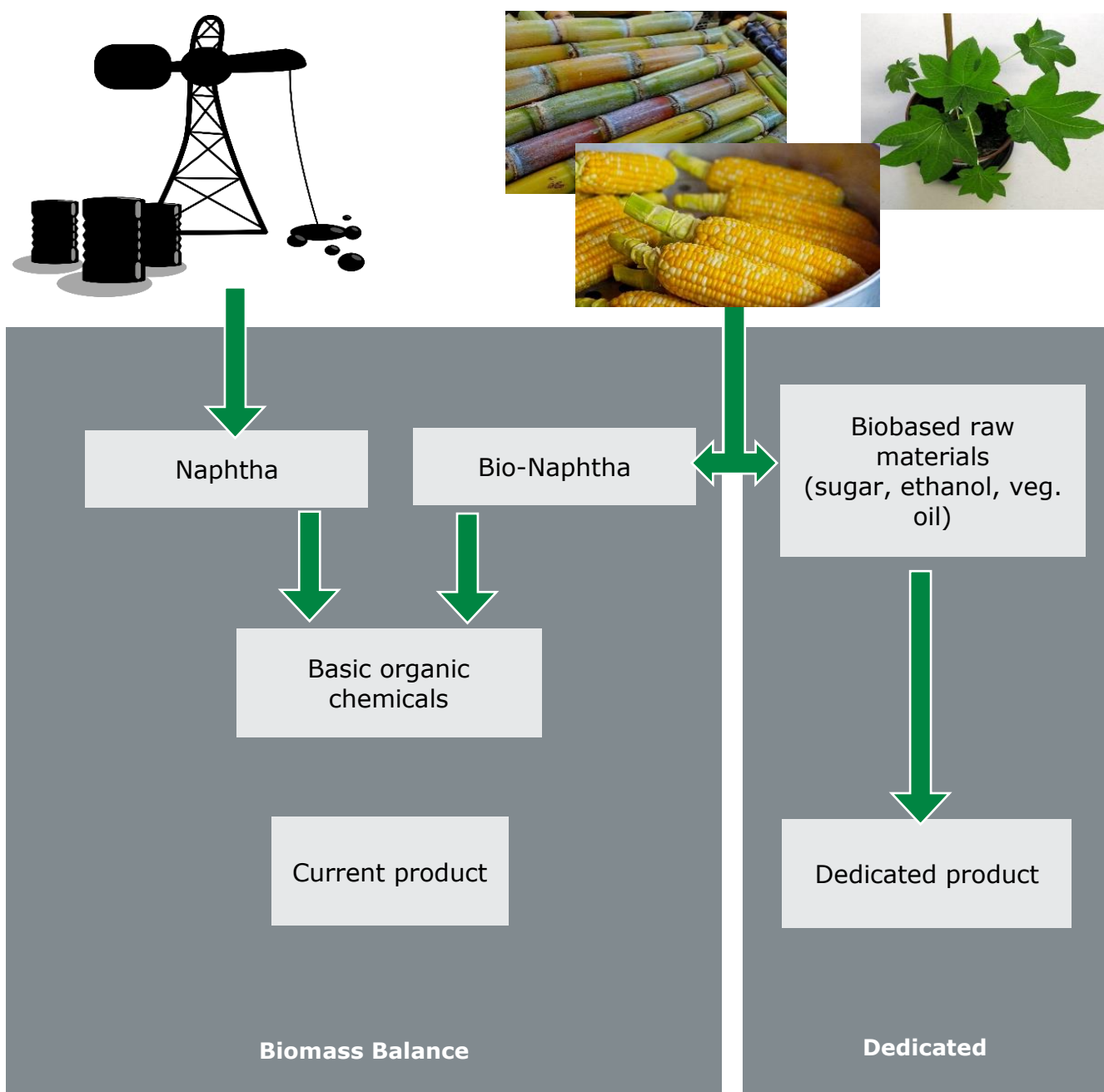
Challenges in using renewable resources

Direct competition with food production	<ul style="list-style-type: none"> • Corn • Palm Oil
Indirect competition with food production	<ul style="list-style-type: none"> • Use of area suitable for food production
No competition with food production	<ul style="list-style-type: none"> • Castor Oil • Waste material
Loss of wildlife habitat	<ul style="list-style-type: none"> • Palm Oil

Different ways to use renewable resources in chemical processes

Direct Use	<ul style="list-style-type: none"> • Castor Oil • Linseed Oil
Use after modification	<ul style="list-style-type: none"> • HCO • Ethoxilated Castor Oil
Conversion by fermentation	<ul style="list-style-type: none"> • "ABE"-Fermentation
Conversion by conventional process	<ul style="list-style-type: none"> • Steam cracker • Syngas

Biomass balance vs. dedicated production with renewable resources:



The biomass balance approach offers a convenient way to incorporate renewable materials in the process stream. Biomaterials are used to manufacture Bio-Naphtha which is then used in "ordinary" chemical feedstock production.

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The main advantage is that the final product remains unchanged despite the use of renewable resources. However, the final product may not even contain one renewable carbon atom since this is a statistical approach.

The supplier uses an equivalent of renewable raw material per purchased ton of bio mass balance product.

Since it's a statistical method as products made from biomass and crude oil are manufactured in the same plant, a certified process of surveillance with an independent 3rd party needs to be implemented.

Binder-producer and paint-manufacturer will need to be certified accordingly.

Learn more:

<https://www.iscc-system.org/>

<https://www.tuv.com/world/en/iscc-international-sustainability-and-carbon-certification.html>

ALBERDINGK BOLEY is ISCC PLUS certified since august 2024, certificates: see page 17 & 18.



Current ALBERDINGK® products based on renewable resources

Biobased products for wood coatings

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
Castor Oil	CUR 991	39	Flooring / furniture	Hard
	CUR 920	55	Flooring / furniture	Hard
Linseed Oil	LUR 3	55	Exterior stains	Hard
	OP 100	89	Flooring / furniture	For penetration into wood
	OP 105	100	Flooring / furniture	As diluent for OP 100
Biobased monomer	U 8500	21	Hardwood flooring	Hard
	Ren AC 8700	42	Flooring / furniture	Hard
	Ren AC 9630	21	High quality furniture	Hard
<i>The following Alberdingk® product will be available in a short term:</i>				
	Ren AC 8742	16	Pigmented furniture	Hard



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Biobased products for architectural coatings

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
Castor Oil	CUR 751	57	Wallpaint	Soft
	ALBODUR® Products	60 - 95	Miscellaneous	100% polyols
Biobased monomer	Ren AC 5605	21	Interior & exterior paints	Soft
	Ren AC 8003	45	Plasters & facade paints	Soft
	Ren AC 8025	38	Scrub resistant wallpaints	Soft
	Ren AC 8403	32	Metal / concrete coatings	Hard
	Ren AS 7900	40	Low-VOC- wallpaints	Soft
	Ren U 178	77	Flat-roof coatings	Soft
	<i>The following Alberdingk® products will be available upon request:</i>			
	Ren U 228	68	Flat-roof coatings	Soft, high resistances
	Ren U 400 N	66	Waterproofing, exterior paints	Medium hard



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Biobased products for packaging & film coatings & printings

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
Biobased monomer	Ren AC 5605	21	Printing & packaging	Soft

The following Alberdingk® products will be available upon request:

Biobased monomer	Ren U 355	75	Heat Seal applications	Medium hard
	Ren U 400 N	66	Primer for film coatings	Medium hard
	Ren U 460	56	Heat Seal applications	Medium hard
	Ren U 4000	55	Primer for film coatings (e.g. BOPP)	Soft
	Ren U 4101	64	Primer for film coatings	Tacky



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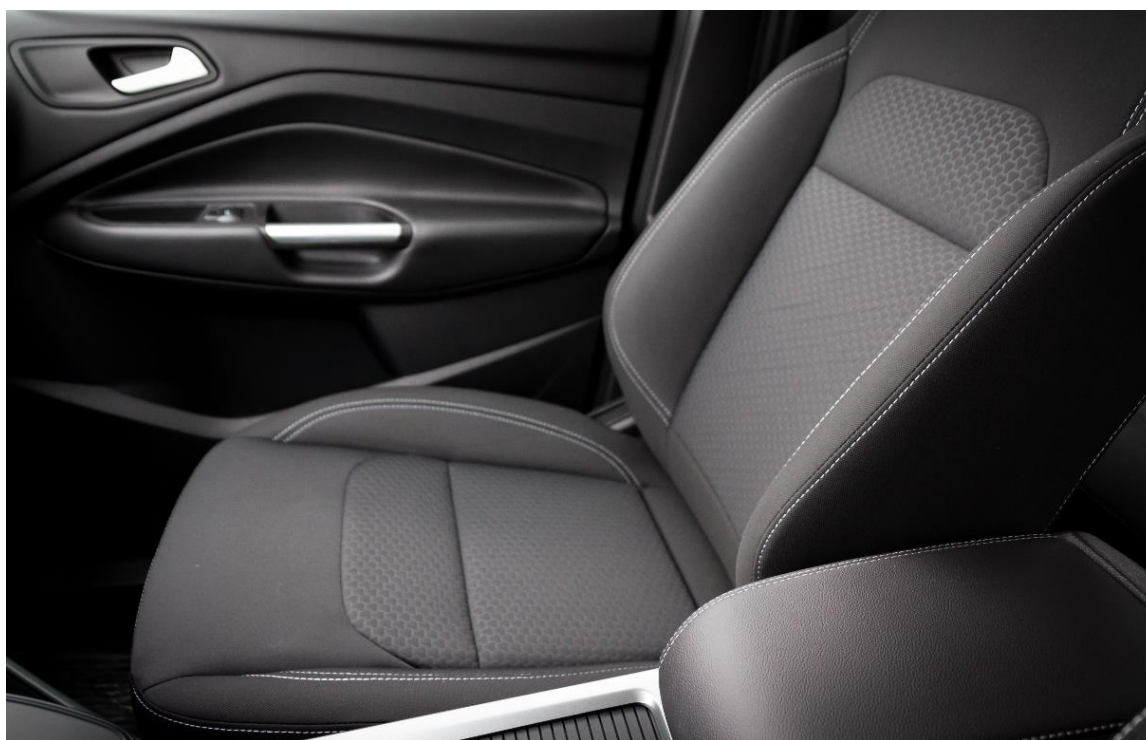
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Biobased products for textile & leather coatings

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
Biobased monomer	Ren U 178	77	Base- & topcoats	Soft
	Ren AC 5605	21	Leather basecoats	Soft
	<i>The following Alberdingk® products will be available upon request:</i>			
	Ren U 228	68	Base- & topcoats	Soft, high resistances
	Ren U 400 N	66	Base- & topcoats	Medium hard
	Ren U 4101	64	Adhesion primer for hydrophobic leather	Tacky



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Biobased products for metal coatings

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
Biobased monomer	Ren AC 8403	32	Metal coatings	Hard
	Ren AC 8003	45	Metal coatings	Medium hard



Biobased products for adhesive applications

Raw Material Base	Product	Renewable Content [% on solids]	Application	Characterisation
<i>The following Alberdingk® products will be available upon request:</i>				
Biobased monomer	Ren U 228	68	Heat activated adhesives, lamination	Soft
	Ren U 355	75	Heat Seal applications	Medium hard
	Ren U 400 N	66	Primer for film coatings	Medium hard
	Ren U 460	56	Heat Seal applications	Medium hard
	Ren U 4000	55	Adhesion primer	Soft
	Ren U 4101	64	Adhesion promotion	Tacky



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Future projects with renewable content

Enhance the ALBERDINGK® portfolio based on dedicated renewables

- ALBERDINGK BOLEY is constantly working on the development of novel castor and linseed oil based dispersions as well as polyols for various applications such as e.g. leather finish, textile coatings, architectural paints, construction, printing and packaging.
- Many polyurethane dispersions can immediately be produced based on polyols which are manufactured from biological sources instead of mineral oil.
- ALBERDINGK BOLEY is currently working intensively to enhance the portfolio of acrylate dispersions based on dedicated, renewable biobased monomers.

Certification of the Biomass-Balance concept

ALBERDINGK BOLEY is ISCC PLUS certified since middle of 2024, so we will be able to provide biomass-balanced products upon request.

→ See also certificates on the following page



Information on availability of biobased development products

- Please note that many biobased raw material are still short in supply and may have longer lead times, therefore availability of ALBERDINGK® products can vary.
- In case of identical chemical backbone (example **U 400 N** vs **Ren U 400 N**) testing can be done with the standard grades and "Ren" samples may only be required for final ¹⁴C analysis / commercial orders
- Examples of biobased development products shall not indicate availability of large sample quantities!
This will improve over time and we will keep our partners updated.

**You haven't found the product, you're looking for?
Please talk to us!**

TÜVNORD**ISCC PLUS Certificate**

Certificate Number: ISCC-PLUS-Cert-DE129-35367073

TÜV NORD CERT GmbH
Am TÜV 1, 45307 Essen

certifies that

Alberdingk Boley GmbH
Düsseldorfer Str. 53
47829 Krefeld

complies with the requirements of the certification system

ISCC PLUS
(International Sustainability and Carbon Certification)Place of the audit
As above

This certificate is valid from 16.08.2024 to 15.08.2025.

The site of the system user is certified as:

Polymerization plant
TraderThe scope of the certificate includes the following chain of custody options:
(not applicable for paper traders)

Mass Balance

Essen, 15.08.2024
Place and date of issue
Stamp, Signature of issuing partyThe issuing Certification Body is responsible for the accuracy of this document.
Version / Date: 1 (no adjustments) / 15.08.2024

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TÜVNORD**ISCC PLUS Certificate**

Certificate Number: ISCC-PLUS-Cert-DE129-35367074

TÜV NORD CERT GmbH
Am TÜV 1, 45307 Essen

certifies that

Alberdingk Boley GmbH
Zeißstraße 21
50171 Kerpen

complies with the requirements of the certification system

ISCC PLUS
(International Sustainability and Carbon Certification)Place of the audit
As above


This certificate is valid from 16.08.2024 to 15.08.2025.

The site of the system user is certified as:

Polymerization plant

The scope of the certificate includes the following chain of custody options:
(not applicable for paper traders)

Mass Balance

Essen, 15.08.2024
Place and date of issue
Stamp, Signature of issuing partyThe issuing Certification Body is responsible for the accuracy of this document.
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